## Radiation Oncology Subgroup

Project 1: DCIS and Stage I Breast Cancer

### Radiology

1. Mammogram - A bilateral mammogram should be required for all patients. Suggest adequate views and supplemental magnification to deliver a report in accordance with the ACR Standard for Communication. Comments regarding the size of the suspicious lesion, location with regard to the quadrant and relation to the areolar complex, depth of the lesion from the surface of the skin, and other suspicious lesions or microcalcifications that may be present would be useful to the radiation oncologist (Identifying the location of the tumor bed for consideration of an electron boost and ruling out gross multifocal or multicentric disease that are contraindications for breast conservation.)

2. Radiographic imaging of lumpectomy specimen/post lumpectomy mammogram – Radiographic confirmation of complete excision of the lesion should be required for all lesions detectable on mammogram. Post lumpectomy mammogram is preferred for patients presenting with malignant microcalcifications. (Radiographic evidence of any gross disease remaining in the breast is a contraindication for breast conservation and a re-excision prior to radiation or mastectomy is indicated in such situation.)

3. Follow-up mammogram – The involved breast should be imaged every 6-12 months. Bilateral mammograms are recommended yearly, for the remainder of the patient's life.

4. Supplemental studies – The following studies are not required as routine work-up, yet may be considered if clinically indicated: breast ultrasound, chest x-ray, bone scan, x-rays, CT of the head, chest, abdomen, or pelvis, MRI of the brain or spine, abdominal ultrasound.

**Pathology**

1. Gross description of the size of the tumor in three dimensions.

2. Gross identification of multifocal lesions and the distance separating the lesions.

3. Number of lymph nodes in the axillary lymph node dissection specimen and the number involved.

4. Gross assessment of margins.

5. Microscopic assessment of margins – For negative margins, quantifying the distance in terms of millimeters to the closest surgical edge is recommended. If positive margins are present, the number and extent should be quantified. (Number of positive margins, the number of high powered fields required to encompass the positive margin or the number or slides that a positive margin is seen on.) The anatomic location of the positive margin should also be commented on if possible in order to facilitate consideration of re-excision.

6. DCIS. The pathologic subtype and grade should be identified. The appropriate thickness of the slices required to rule out microinvasive disease.

7. EIC 0- An extensive intraductal component defined as 1) Invasive disease with greater than 25% of the tumor mass composed of DCIS with DCIS in the adjacent normal tissue or 2) A tumor primarily composed of DCIS with a microinvasive component should be identified. (The presence of EIC has prognostic and therapeutic implications for breast conservation therapy.)

8. Pectoralis fascia involvement, chest wall involvement, skin involvement or dermal lymphatic involvement should be identified if present.

9. ER/PR status, nuclear grade labeling index, S-phase, LVI and ploidy may be indicated as per medical oncology subgroup recommendations.

**History and Physical Exam**

1) Growth rate if palpated by patient – Clinical description of the size and precise location of a palpable mass in terms of quadrant relationship to the areolar complex and depth as well as diagrams are useful. (Identifying the accurate location of the primary tumor bed is important if an electron boost is to be delivered by the radiation oncologist. Mammographic description as specified in the radiology section is useful. Surgical clips and a description of the depth and location of the mass found at operation are useful. Postoperative ultrasound or CT may also be used to identify the location of the primary tumor bed.)

2) Presence or absence of the systemic symptoms. (Bone pain, weight loss, neurological symptoms, review of systems.)

3) Past Medical History – Parity, onset of menses, menopausal status, medical problems, medications (estrogen), allergies, prior malignancies, prior XRT, prior chemotherapy, prior surgery. Collagen vascular disease – Appropriate rheumatologic work-up to assess the severity and status of disease. (Collagen vascular disease may be considered a contraindication to radiation therapy for breast conservation therapy.)

4) Social History

5) Family History of Breast Cancer

6) Labs – CBC with chem panel is recommended. Beta HCG is recommended for all premenopausal women contemplating breast conservation therapy.

## Initial Treatment

### Stage 0 – DCIS

Patients may be considered for mastectomy or wide local excision. The treatment choice depends upon tumor characteristics, breast size, and the patient's desire for breast preservation. The survival benefit is equivalent for the following options if the DCIS can be completely resected.

- Excision with radiation ( it is desirable for patients to have a greater than 2mm negative margin, however some studies suggest that patients with microscopically focally positive margins are still candidates for radiation therapy.)
- Excision alone with wide negative margins (> 10mm negative margin) may be appropriate for selected patients. (Elderly, low grade, < 1cm lesions.)
- Simple mastectomy, which may be followed by immediate or delayed reconstruction.
- Axillary node dissection is generally not indicated for DCIS but may be considered in highly selected cases of extensive, high grade DCIS or if the patient has clinically suspicious nodes.
- After excision of mammographically detected DCIS, consider a follow-up mammogram if breast preservation chosen.
- Clinical trials.

### Stage I

1) Patients may be considered for mastectomy or wide local excision. Treatment approach depends upon tumor characteristics, breast size, and patient's desire for breast preservation. Assessment of axillary lymph node status is recommended by way of axillary node dissection (Level I & II ALND with > = 6 nodes in the specimen), or by sentinel lymph node examination (in centers with demonstrated track record). In patients in whom chemotherapy is not a consideration (i.e. elderly patients with very favorable tumors), the elimination of axilla lymph node dissection may be considered and the axilla may be treated within the radiation therapy breast tangents or with matching AP/PA axilla fields. The survival benefit is equivalent for the following options:
   - Patient may undergo lumpectomy. Following excision, the margins should be evaluated. If positive margins are observed, a more extensive excision should be considered. If negative margins are not possible, a mastectomy should be considered. Following excision with negative margins, patients receive radiation. (select, elderly patients with focal positive margins may be considered for breast conservation therapy)
   - Modified radical mastectomy or simple mastectomy which may be followed by immediate or delayed reconstruction. Patients with positive margins or pectorals fascia involvement should receive chest wall radiation.

2) Adjuvant therapy as per Medical Oncology.
3) Clinical trials.

**Radiation Oncology Therapy Issues**

1) Contraindications for BCT

- Prior chest XRT that would overlap with tangential breast XRT
- Pregnant
- Diffuse suspicious microcalcifications
- Positive margins (more than focally positive)
- Radiographic evidence of residual disease s/p lumpectomy
- Patient desires mastectomy
- Gross multicentric/multifocal diseas
- +/- Small breast size with poor expected cosmetic results
- +/- Collagen vascular disease

2) Techniques for Tangents

SAD noncoplanar or SSD asymmetric jaw techniques. <3cm lung. No divergence into lung. Photons.

3) Fractionation

180-200cGy/day, 5 days/week

4) Total Doses to Breast/Boost

4,500 – 5,040 cGy entire breast
1,000 – 1,500 cGy tumor bed boost should be considered.

5) Medial Wedge Omission for Young Patients (< =45 years old)